REMARKS

Responsive to the Restriction Requirement mailed July 31, 2002, Applicants elect the invention of Group I (claims 1-3, 5-7, 13, 15-16 and new claims 24-27) drawn to a B cell epitope peptide of *Mycobacterium Tuberculosis* HSP 65 and a vaccine containing such an epitope peptide. This election is made without traverse.

Further, Applicants elect the species of SEQ ID NO:2 (peptide 6) of the claimed Group I invention. The claims readable thereon include amended claims 1-2, original claims 5-7, 13 and 15-16, and new claims 24 and 26.

In view of the present amendment, Applicants respectfully traverse the requirement for species election among SEQ ID NOs:1-3. SEQ ID NOs:1-3 are highly related peptide sequences. SEQ ID NO:1 contains amino acids 31-52 of the *Mycobacterium Tuberculosis* HSP 65 (SEQ ID NO:6). SEQ ID NOs:2 and 3 are two overlapping subsets of SEQ ID NO:1. SEQ ID NO:2 contains the N-terminal 16 amino acids of SEQ ID NO:1 (i.e., amino acids 31-46 of SEQ ID NO:6), and SEQ ID NO:3 contains the C-terminal 16 amino acids of SEQ ID NO:1 (i.e., amino acids 37-52 of SEQ ID NO:6). They overlap with each other by 10 amino acids (i.e., amino acids 37-46 of SEQ ID NO:6). As such, a single search (with SEQ ID NO:1) would reveal prior art for all three peptide sequences. Applicants therefore request that the requirement for species election be withdrawn.

Applicants have amended claim 1 to make it a generic claim that excludes the prior art yet covers all three peptide species, SEQ ID NOs:1-3. Original claim 1 has been rewritten as new claim 24, properly depending from amended claim 1. Claims 2-3 have been amended to promote clarity. Support for amended claims 1-3 and newly added claims 24-27 can be found, e.g., at page 4, lines 16-21, of the specification. No new matter has been introduced by the present amendment.

In addition, Applicants have corrected the formal drawings by separating Fig. 1 into Figs. 1A and 1B. Copies of these figures are attached with the changes marked in red. Accordingly, the description of Fig. 1 (page 4, line 2) and a reference to Fig. 1 (page 19, line 2) in the specification have been amended. For consistency, sequence P06806 described at page 4,

line 3, should be referred to as "*MycobacteriumTuberculosis* HSP 65" at page 4, line 2, so that change was made, as well.

Attached is a marked-up version of the changes being made by the current amendment.

Applicants respectfully ask that claims 1-3, 5-7, 13, 15-16, and 24-27 be examined and allowed.

Enclosed is a $36 check for the excess claims fee. Please apply any other charges to Deposit Account No. 06-1050, referencing attorney docket no. 13125-002001.

Respectfully submitted,

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Version with markings to show changes made

In the specification:

The paragraph beginning at page 4, line 2, has been replaced with the following rewritten paragraph:

[Fig. 1] Figs. 1A and 1B, *MycobacteriumTuberculosis* HSP 65, rat HSP 60 and human HSP 60 (sequences P06806, P19227 and P10809, corresponding to SEQ ID NOs:6, 7 and 8 respectively), were compared with pileup program from GCG-Wisconsid Package v.9.0. The conserved regions are indicated (consensus). Bold, underlined residues represent the preferred peptides.

The paragraph beginning at page 19, line 2, has been replaced with the following rewritten paragraph:

The HSP 60 family is highly conserved: MT-HSP 65 and its mammalian homologues (rat or human) show 48% identity. In [Fig. 1] Figs. 1A and 1B, the three amino acid sequences of the MT-HSP 65, HSP 60 from rat and human are compared. The consensus sequence of these three proteins is shown too. The epitopes that were found to be relevant in this study are shown in Bold and Underlined.

In the claims:

Claims 1-3 have been amended as follows:

1. A B cell epitope peptide [comprising the amino acid sequence as denoted by SEQ ID NO:1], the sequence of which comprises SEQ ID NO:1 or a portion thereof that is selected from the group consisting of SEQ ID NO:2 and SEQ ID NO:3.

2. [A] The B cell epitope peptide [as claimed in] of claim 1, [having the amino acid sequence as denoted by] the sequence of which consists of SEQ ID NO:2.

3. [A] The B cell epitope peptide [as claimed in] of claim 1, [having the amino acid sequence as denoted by] the sequence of which consists of SEQ ID NO:3.

	1	6			25
HSP 65 - *M.T.*	----------	----------	-----MAKTI	AYDEEARRGL	ERGLNALADA
HSP 60 - *RAT*	MLRLPTVLRQ	MRPVSRALAP	HLTRAYAKDV	KFGADARALM	LQGVDLLADA
HSP 60 - *HUMAN*	MLRLPTVFRQ	MRPVSRVLAP	HLTRAYAKDV	KFGADARALM	LQGVDLLADA
Consensus	----------	----------	------AK--	-----AR---	--G---LADA

	26				75
HSP 65 - *M.T.*	VKVTLGPKGR	NVVLEKKWGA	PTITNDGVSI	AKEIELEDPY	EKIGAELVKE
HSP 60 - *RAT*	VAVTMGPKGR	TVIIEQSWGS	PKVTKDGVTV	AKSIDLKDKY	KNIGAKLVQD
HSP 60 - *HUMAN*	VAVTMGPKGR	TVIIEQSWGS	PKVTKDGVTV	AKSIDLKDKY	KNIGAKLVQD
Consensus	V-VT-GPKGR	-V--E--WG-	P--T-DGV--	AK-I-L-D-Y	--IGA-LV--

6-7 (31-52 AA)

	76				125
HSP 65 - *M.T.*	VAKKTDDVAG	DGTTTATVLA	QALVREGLRN	VAAGANPLGL	KRGIEKAVEK
HSP 60 - *RAT*	VANNTNEEAG	DGTTTATVLA	RSIAKEGFEK	ISKGANPVEI	RRGVMLAVDA
HSP 60 - *HUMAN*	VANNTNEEAG	DGTTTATVLA	RSIAKEGFEK	ISKGANPVEI	RRGVMLAVDA
Consensus	VA--T---AG	DGTTTATVLA	-----EG---	---GANP---	-RG---AV--

21 (121-136 AA)

	126				174
HSP 65 - *M.T.*	VTETLLKGAK	EVETKEQIAA	TAAISA.GDQ	SIGDLIAEAM	DKVGNEGVIT
HSP 60 - *RAT*	VIAELKKQSK	PVTTPEEIAQ	VATISANGDK	DIGNIISDAM	KKVGRKGVIT
HSP 60 - *HUMAN*	VIAELKKQSK	PVTTPEEIAQ	VATISANGDK	EIGNIISDAM	KKVGRKGVIT
Consensus	V---L-K--K	-V-T-E-IA-	-A-ISA-GD-	-IG--I--AM	-KVG--GVIT

	175				224
HSP 65 - *M.T.*	VEESNTFGLQ	LELTEGMRFD	KGYISGYFVT	DPERQEAVLE	DPYILLVSSK
HSP 60 - *RAT*	VKDGKTLNDE	LEIIEGMKFD	RGYISPYFIN	TSKGQKCEFQ	DAYVLLSEKK
HSP 60 - *HUMAN*	VKDGKTLNDE	LEIIEGMKFD	RGYISPYFIN	TSKGQKCEFQ	DAYVLLSEKK
Consensus	V----T----	LE--EGM-FD	-GYIS-YF--	----Q-----	D-Y-LL---K

31 (181-196 AA)

36 (211-226 AA)

	225				274
HSP 65 - *M.T.*	VSTVKDLLPL	LEKVIGAGKP	LLIIAEDVEG	EALSTLVVNK	IRGTFKSVAV
HSP 60 - *RAT*	ISSVQSIVPA	LEIANAHRKP	LVIIAEDVDG	EALSTLVLNR	LKVGLQVVAV
HSP 60 - *HUMAN*	ISSIQSIVPA	LEIANAHRKP	LVIIAEDVDG	EALSTLVLNR	LKVGLQVVAV
Consensus	-S------P-	LE------KP	L-IIAEDV-G	EALSTLV-N-	-------VAV

40 (236-251 AA)

45 (265-280 AA)

FIG. 1A

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                    275.                                                 323
HSP 65 - M.T.       KAPGFGDRRK AMLQDMAILT GGQVISEE.V GLTLENADLS LLGKARKVVV
HSP 60 - RAT        KAPGFGDNRK NQLKDMAIAT GGAVFGEEGL NLNLEDVQAH DLGKVGEVIV
HSP 60 - HUMAN      KAPGFGDNRK NQLKDMAIAT GGAVFGEEGL TLNLEDVQPH DLGKVGEVIV

Consensus           KAPGFGD-RK --L-DMAI-T GG-V--EE-- -L-LE----- -LGK---V-V


                    324                                                  373
HSP 65 - M.T.       TKDETTIVEG AGDTDAIAGR VAQIRQEIEN SDSDYDREKL QERLAKLAGG
HSP 60 - RAT        TKDDAMLLKG KGDKAHIEKR IQEITEQLDI TTSEYEKEKL NERLAKLSDG
HSP 60 - HUMAN      TKDDAMLLKG KGDKAQIEKR IQEIIEQLDV TTSEYEKEKL NERLAKLSDG

Consensus           TKD------G -GD---I--R ---I------ --S-Y--EKL -ERLAKL--G

                                                    59 (349-364 AA)

                    374                                                  423
HSP 65 - M.T.       VAVIKAGAAT EVELKERKHR IEDAVRNAKA AVEEGIVAGG GVTLLQAAPT
HSP 60 - RAT        VAVLKVGGTS DVEVNEKKDR VTDALNATRA AVEEGIVLGG GCALLRCIPA
HSP 60 - HUMAN      VAVLKVGGTS DVEVNEKKDR VTDALNATRA AVEEGIVLGG GCALLRCIPA

Consensus           VAV-K-G--- -VE--E-K-R --DA-----A AVEEGIV-GG G--LL---P-

                         63 (373-388 AA)

                    424                                                  472
HSP 65 - M.T.       LDELK.LEGD EATGANIVKV ALEAPLKQIA FNSGLEPGVV AEKVRNLPAG
HSP 60 - RAT        LDSLKPANED QKIGIEIIKR ALKIPAMTIA KNAGVEGSLI VEKILQSSSE
HSP 60 - HUMAN      LDSLTPANED QKIGIEIIKR TLKIPAMTIA KNAGVEGSLI VEKIMQSSSE

Consensus           LD-L-----D ---G--I-K- -L--P---IA -N-G-E---- -EK-------


                    473                                                  522
HSP 65 - M.T.       HGLNAQTGVY EDLLAAGVAD PVKVTRSALQ NAASIAGLFL TTEAVVADKP
HSP 60 - RAT        VGYDAMLGDF VNMVEKGIID PTKVVRTALL DAAGVAPLLT TAEAVVTEIP
HSP 60 - HUMAN      VGYDAMAGDF VNMVEKGIID PTKVVRTALL DAAGVASLLT TAEVVVTEIP

Consensus           -G--A--G-- ------G--D P-KV-R-AL- -AA--A-L-- T-E-VV---P

                                                    84 (499-514 AA)

                    523              540
HSP 65 - M.T.       EKEKASVPGG GDMGGMDF-- -----
HSP 60 - RAT        KEEKD..PGM GAMGGMGGGM GGGMF
HSP 60 - HUMAN      KEEKD..PGM GAMGGMGGGM GGGMF

Consensus           --EK---PG- G-MGGM---- -----
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FIG. 1B